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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/765,650	01/22/2001	Soo Young Lee	EM/LEE/6444	6895
7590	08/02/2004		EXAMINER	
BACON & THOMAS, PLLC 4th Floor 625 Slaters Lane Alexandria, VA 22314-1176			LERNER, MARTIN	
			ART UNIT	PAPER NUMBER
			2654	

DATE MAILED: 08/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/765,650	LEE ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Martin Lerner	2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1 to 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1 to 8 is/are allowed.
- 6) Claim(s) \_\_\_\_\_ is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 January 2001 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

**EX PARTE QUAYLE**

This application is in condition for allowance except for the following formal matters:

***Drawings***

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). The Specification, Page 1, Lines 19 to 20, says that Figure 1 illustrates a structure of a prior voice recognition system.
2. The drawings are objected to because Figure 4 should be illustrated as Figures 4A and 4B, so as to permit Figure 4A to be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). The Specification, Page 12, Lines 17 to 22, describes the first drawing of Figure 4 as "a prior extraction method". Thus, Figure 4 should be divided into Figures 4A and 4B so that Figure 4A can be provided with a label as --Prior Art--.
3. The drawings are objected to because the second drawing of Figure 4, proposed Figure 4B, does not contain register R0. The Specification, Page 13, Line 17 to Page 14, Line 5, discusses register R0, but R0 is not illustrated in the second drawing of Figure 4.

Corrected drawing sheets are required in reply to the Office Action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheets should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office Action. The objection to the drawings will not be held in abeyance.

***Specification***

4. The Abstract of the Disclosure is objected to because it is more than one paragraph. Generally, the Abstract of the Disclosure is limited to one paragraph. Correction is required. See MPEP § 608.01(b).
5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The title is a “voice recognition system”, but in a strictly technical sense, voice recognition denotes recognition of a characteristic pattern of a particular person’s voice, while speech recognition denotes recognition of words spoken. The Specification appears to disclose speech recognition, not voice recognition. Thus, the title should be changed to “Efficient speech recognition system based on an auditory model”.

6. The disclosure is objected to because of the following informalities:

The Specification refers “voice recognition”, but in a strictly technical sense, voice recognition denotes recognition of a characteristic pattern of a particular person’s voice, while speech recognition denotes recognition of words spoken. The Specification appears to disclose speech recognition, not voice recognition. Thus, it is requested that the Specification be amended to change every occurrence of “voice recognition” to – speech recognition—.

On page 2, line 9, “patent No. 180651” appears incorrect. It is unclear whether the patent number refers to a United States Patent or a Korean Patent. Applicants should be more specific about the patent to which reference is being made, and provide a copy of the patent if it is not readily available to the public.

On page 5, line 18 and on page 12, line 5 to page 13, line 17, reference to “Figure 4” should be changed to refer to –Figure 4A—and –Figure 4B— to correspond to the proposed changes to the drawings to reflect that the first drawing of Figure 4 represents prior art.

On page 6, line 18, reference number “(5)” should be added after “a clock generating section” to correspond to Figure 2.

On page 9, line 20, "16channels" should be –16 channels—.

Appropriate correction is required.

***Claim Objections***

7. Claims 1 to 8 are objected to because of the following informalities:

In claim 1, line 7, "the 12-bit digital signals" lack antecedent basis.

In claim 4, there are two occurrences of "(110 samples)", which should be deleted. Alternatively, the total time interval should be expressly limited to 110 samples, without the parentheses.

Appropriate correction is required.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

***Allowable Subject Matter***

8. Claims 1 to 8 are allowed.

9. The following is an examiner's statement of reasons for allowance:

The prior art of record does not disclose or fairly suggest the combination of FIR filtering of a 12-bit digital signal with powers-of-two conversion and a radial basis

function neural network. *Wang* discloses speech recognition with A/D conversion to produce 12 bit samples (column 4, lines 42 to 56), characteristic feature extraction, which may be noise-resistant (column 5, lines 10 to 60), and a classifier for detecting boundaries between spoken sounds with a discriminant function based on a radial basis function (column 6, lines 5 to 36). *Jiang* ("*FIR filter design and implementation with powers-of-two coefficient*") teaches it is known to design FIR filters with powers-of-two coefficients. However, the combination of *Wang* and *Jiang* does not disclose a word boundary detection section that detects word boundaries instead of boundaries between spoken sounds, a neural network for carrying out the discriminant function, a normalization/recognition section that carries out timing normalization, or a rationale to utilize an FIR filter with powers-of-two conversion to filter a speech signal for speech recognition. The prior art does not disclose or suggest FIR filters with powers-of-two conversion for speech recognition. Thus, the prior art of record does not disclose or reasonably suggest the invention as claimed. The Specification, Page 1, Lines 8 to 12, and Page 3, Line 22 to Page 4, Line 8, discloses advantages for the claimed combination of a practical voice recognition section that is insensitive to external noise, low in power consumption, and high in efficiency.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (703) 308-9064. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*ML*

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7/14/04

*Richemond Dorvil*  
RICHEMOND DORVIL  
SUPERVISORY PATENT EXAMINER